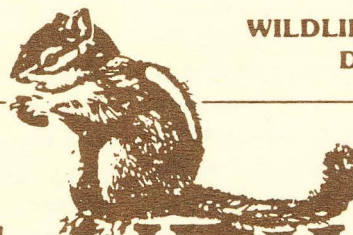


WEST VIRGINIA NONGAME NEWS



VOLUME 5, NUMBER 1

WINTER 1987

Nongame Project Review

• "First of State" 1987 Migratory Waterfowl Stamp

"The marsh might have kept on producing hay and prairie chickens, deer and muskrat, crane music and cranberries forever. The new overlords did not understand this. They did not include soil, plants, or birds in their ideas of mutuality."

Aldo Leopold wrote those words in 1949, and they are still appropriate today. More than half of the original wetlands in the lower 48 states have been destroyed. West Virginia's valuable and scarce wetlands continue to be threatened.

Society is now taking a closer look at wetlands and their tremendous biological diversity. Hydrologists are recognizing wetland values as they pertain to ground aquifers and flood-water retention. Demands to convert our wetlands to other uses continue, but a growing movement is afoot to preserve these areas. Congress has passed laws to protect those that remain.

Wetlands are those areas where the water table is at, near, or above the land surface for a significant part of most years. There are 9 types of wetlands in West Virginia: stream/river, river/marsh, open water, wet meadow, marsh, mire, swamp, embayment, and island.

Wetlands serve a variety of important uses. 1) They protect against storm damage, often serving as temporary storage for flood waters. 2)

Marshes of high biotic productivity are important for fast nutrient cycling and for supporting complex food webs. 3) As unique habitats, wetlands may be used for education and research, for their aesthetic value, and for such recreational uses such as hiking, birdwatching, hunting, and fishing. 4) Wetlands are a source of biotic diversity. Twenty percent of all plant species found in West Virginia are either restricted to or commonly found in wetlands. 5) Wetlands supply important fish and wildlife breeding, feeding, resting, and nursery habitat. 6) Wetlands serve as aquifers and are, therefore, important as a source of surface and ground water recharge.

As you can see, wetlands are one of West Virginia's most unique, valuable and threatened wildlife habitats. For that reason, it is essential that they be protected and preserved as a public trust.

A new program which will help the DNR in its efforts to protect our valuable wetlands is the issuance next

year of the first West Virginia Migratory Waterfowl Conservation Stamp. Its purchase will be mandatory after January 1, 1987 of all waterfowl hunters who are required to purchase a hunting license. Revenue from the \$5.00 stamp will be used to purchase and improve wetland habitat for waterfowl. Stamps can be purchased at any establishment that sells West Virginia hunting and fishing licenses and should be available by mid-December.

Limited edition prints of the artwork for West Virginia's "First-of-State" Migratory Waterfowl Stamp will also be offered for sale during 1987. State waterfowl stamps and prints have become sought-after collectables over the past few years. West Virginia's "First-of-State" Stamp will be done by Daniel Smith, a nationally recognized artist, and will depict Canada geese in flight.

Even if you are not a waterfowl hunter, you can still buy a WV Waterfowl Stamp or limited edition print and help conserve West Virginia's wetlands. Prints, which will cost approximately \$145 each, may be ordered from Wildlife Art Dealers around the state.

•Breeding Bird Atlas

The West Virginia Breeding Bird Atlas Project will be entering its fourth field season in 1987. Every year has witnessed the involvement of more and more of the state's interested birders. But more help is needed in order to complete the project by 1989. All interested individuals should contact

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Dr. A. R. Buckelew, Jr., Biology Dept., Bethany College, P. O. Box J, Bethany, WV 26032, or their local coordinator.

The local coordinators were listed in the Spring 1986 issue of the "Nongame News." Since that time there have been a few changes. They include: for the Eastern Panhandle West—Gerald R. Wilcox, 350 Woodland Way, Romney, WV 26757 (822-4778 home or 788-3011 ext. 205 office); Northern Panhandle—Dr. A. R. Buckelew, Jr., at the above address (829-7641 office, 829-4392 home); and Princeton area—James Phillips, 900 Reynolds Avenue, Princeton, WV 24740 (487-2514).

Attracting Birds

We are well into the winter bird feeding season. At this time you may have a number of questions such as: Why don't more birds come to my feeder? How can the bigger birds like jays and blackbirds be controlled so that the smaller birds have a chance to feed? Is there any way to regulate the kinds of birds that will frequent my feeder? and, I enjoy feeding birds in the winter, but how do I attract birds to my yard in the summer? The following summary will give you some useful tips.

Attracting birds depends on several important factors. The placement of a feeder in the landscape is paramount in determining its ultimate popularity. The landscape position refers primarily to the structure (height & density) of surrounding vegetation, although man-made objects such as buildings can also play an important role. Birds need different plant structure for different purposes. For example, thick evergreens may shelter birds at night when they are roosting. Open shrubs and trees can be useful as perches where seeds can be eaten and a place from which birds can survey the area for possible enemies. Finally, some birds prefer low growing shrubs or brush piles as areas to feed.

In addition to the structure of the vegetation, more birds and bird species will be attracted to plants that also supply food. Several types of plants may hold fruit well into the fall and winter and will attract certain species without requiring supplemental feeding. If you have ever watched a flock of waxwings descend on a wild

cherry tree or berry producing vine late in the fall, you are already aware of this valuable method of attracting birds and other wildlife.

Birds are first attracted to an area and then to specific feeders. Keep in mind the different feeding habits of different species of birds and think about how your yard and your whole neighborhood are landscaped, and you may have some insight into why certain species are attracted to your feeder. If your yard needs more structure, such as trees and shrubs to meet the needs of a wide variety of birds, then the cold winter evenings are an ideal time to look through the nursery catalogues and plan your landscape to attract wildlife year-round.

Ground feeding birds, such as juncos and sparrows, prefer to climb on, under or through brush piles or shrubs. More of these birds will be attracted to areas with this type of cover than to an open lawn. If you do not have this low structure currently, consider using your old Christmas tree (providing of course that it is a real tree) or those of your neighbors, to create a temporary brush pile cover near your feeder. Seed can be sprinkled around and under these areas to ensure a continuing supply of entertaining "ground scratchers."

Finches, goldfinches, titmice, chickadees, nuthatches, cardinals, blue jays, evening grosbeaks, mourning doves, cowbirds and grackles like to get seed from a feeder or open ground. They then fly off to a perch to eat the seeds or just survey the area. This requires some larger open shrubs with stout branches or nearby trees. Without this type of structure, fewer of these species will be attracted.

On the other hand, if some of these species have "taken over," then the addition or removal of brush from around or under the feeder may prevent some of the species from gathering in large groups. For example, blackbirds like to flock under pole feeders. If you would prefer to regulate their numbers then put enough tree trimmings or brush under the feeder so they cannot gather there. These birds are reluctant to walk through brush. Experimentation is the key to success.

The species of birds you attract will correspond to the shape and size of the feeder you use and to the type of food you make available. Platform feeders, large covered tray feeders, and large hopper feeders will allow easy access to jays and blackbirds. Sometimes smaller birds are kept away by the larger birds. To alleviate this situation, put out at least two different kinds of feeders. One can be of an easily accessible size to all birds and the other should be made so that no surface is large enough to allow a larger bird to perch. Tubular plexiglass feeders with small dowel perches are one type that will reduce big bird bullying. When you make or buy your next feeder, think about its construction and what species will have access to the food in or on it.

The type of feed you put out will also determine the species and number of birds visiting your yard. See the feeding preference table in this issue for a summary of bird feeding.

So, remember the key points to feeding and attracting birds. They are: surrounding vegetational structure, type of feeder, and the kind of food. By juggling these three elements you should be well on your way to attracting the species of birds you most enjoy watching.

Preferred Foods Of Our Common Winter Birds

If you feed birds during the winter, or would like to get started, a study published by the U. S. Fish and Wildlife Service will be of interest. The report identifies commercially available wild bird foods which are most attractive to our common winter resident birds. The feeding preferences for 15 common species are shown in the accompanying table.

If you would like to experiment with feeding preferences, the Nongame Wildlife Program staff would like you to share your results. Write and let us know what you find as favorites for the different species in your area.

Table 1. Food Preferences of Common Winter Birds *(in Descending Order)*

American Goldfinch	Hulled sunflower seeds, thistle seed, oil-type sunflower (in hull)
Blue Jay	Whole peanut kernels, black striped sunflower, gray striped sunflower
Brown-headed Cowbird	White proso millet, red proso millet, German millet
Cardinal	Oil-type sunflower, black striped sunflower, gray striped sunflower
Carolina Chickadee	Oil-type sunflower, black striped sunflower, hulled and gray striped sunflower, peanut kernels
Dark-eyed Junco	Red and white proso millet, canary seed, fine cracked corn
Common Grackle	Hulled sunflower seeds, cracked corn
Evening Grosbeak	Oil-type sunflower, black striped sunflower, hulled sunflower seeds, gray striped sunflower, red proso millet, thistle
House Finch	Oil-type sunflower, black striped sunflower, hulled sunflower seeds, gray striped sunflower, red proso millet, thistle
House Sparrow	White proso millet, other small seeds
Mourning Dove	Oil-type sunflower, white proso millet, red proso millet, thistle, wheat, milo, hulled sunflower seeds, buckwheat, canary seed, hulled oats, fine cracked corn
Purple Finch	Oil-type sunflower, black striped sunflower, gray striped sunflower, thistle, red and white proso millets
Song Sparrow	White proso millet, red proso millet, oil-type sunflower
Tufted Titmouse	Peanut kernels, black striped sunflower, gray striped sunflower, oil-type sunflower
White-breasted Nuthatch	Black striped sunflower
White-throated Sparrow	Oil-type sunflower, white proso millet, black striped sunflower, (hulled sunflower kernels, peanut kernels—in some samples were highest), red proso millet, canary seed, fine cracked corn, gray striped sunflower

Bird House Development

By Craig Tufts

How do birds choose a home? Much the same way you or I do. They evaluate, in their terms: Is the area attractive? Is it close to work (i.e. the finding of berries, insects, seeds, water, etc.)? Is the site good for a home? If there's already a home on the site, is it suitable? And, especially, is this a good place to raise a family?

Nothing enhances a human homeowner's enjoyment and understanding of life much more than watching birds raise their young. And nothing makes watching easier than providing a birdhouse the birds can call their own. Wrens, chickadees, titmice, bluebirds, and swallows are prime occupants for ready-made homes.

Your immediate surroundings will help you determine what kind of birds to provide for. If you want them close by, wrens are attracted to birdhouses placed fairly close to the ground among dense trees and shrubs. Chickadees and titmice like to nest in patches of

large trees. Bluebirds opt for wide open spaces—extensive lawns, golf courses, pastures, and cemeteries. Swallows like the same open spaces—so long as they're close to rivers and ponds.

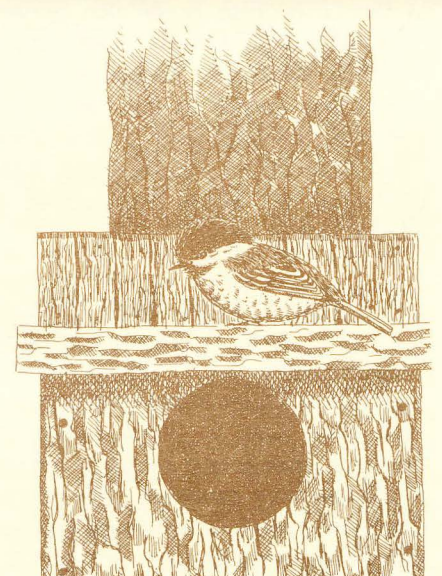
Each kind of bird is almost as choosy about its birdhouse construction as about its site—though all the birds mentioned will move into a basic rectangular, 5-inch-wide by 10-inch-high box built of unpainted, 1/2 inch spruce, fir, pine or exterior plywood. The box should be equipped with 3/8-inch-drainage holes in the bottom and a 1 1/2-inch entrance hole placed near the top of one side. Perches aren't needed and in fact may attract nesters such as house sparrows that may injure box users, like wrens and chickadees, which you are trying to encourage.

Late winter or early spring is ideal birdhouse-building time. Mount the box 3 to 5 feet off the ground on a pole, fence post or tree trunk.

Once a bird family is in residence, keep a close watch—for practical as well as pleasurable reasons. A day or two after the young leave the nest, it's birdhouse-cleaning time. If you have played host to bluebirds or wrens, chances are the parents will return to their cleaned-up home to raise a second brood the same summer. That's one kind of high interest you can tolerate.

(For more information on bird house construction contact the WV Nongame Wildlife Program, Operations Center, P. O. Box 67, Elkins, WV 26241.)

—*The Backyard Naturalist*



Endangered Species Notes

• On October 24, 1986, the Wildlife Resources Division received a call concerning an injured raptor that had been found by Mavin Daniels of Charleston at the intersection of I-79 & I-77. Much to the surprise of the wildlife officials, the "hawk" was an immature peregrine falcon, a federally endangered species.

Numbers on two leg bands were traced through the U. S. Fish and Wildlife Service Bird Banding Laboratory. The bird turned out to be a tundra peregrine falcon (*Falco peregrinus tundrius*), found only in the tundra regions of Northern Alaska, Canada, and Greenland. This particular bird had been banded as one of two fifteen-day old chicks in a cliff nest on July 29, 1986 in Søndre Strømfjord, West Greenland.

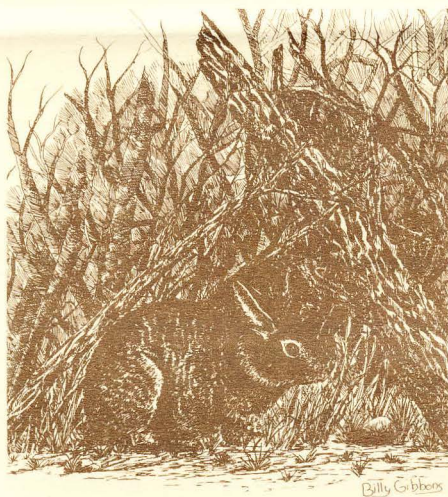
Until the 1970's, little was known about this Greenland population of peregrines — one of the few surviving eastern populations of the peregrine falcon. Since that time a team of scientists has been going to Greenland every summer to study these birds, and the peregrine found in West Virginia was banded by a member of this team. Biologists estimated that the bird may have left Greenland around mid-September on its southern migration.

Unfortunately, the falcon was weak and emaciated by the time it was found, and died soon after en route to the WV Raptor Rehabilitation Center near Morgantown. The bird was examined at the U. S. Fish & Wildlife Service National Wildlife Health Laboratory in Madison, Wisconsin. Examiners found only a few insects in the bird's crop and said the bird died of starvation. They believed an injured upper beak prevented the falcon from eating its normal diet of birds.

• This past spring, when biologists from the WV Nongame Wildlife Program and the National Wildlife Federation climbed into the state's only bald eagle nest to band this year's nestlings, they found 3 eaglets instead of the two they expected. This nesting site has successfully produced 2 eaglets every year since its discovery in 1981.

Since these fledglings would just now be reaching maturity, biologists are hopeful that new nests will be discovered in the near future. The public is urged to report any sightings of these magnificent birds, especially in the late winter months when courtship begins, to the WV Nongame Wildlife Program or the local DNR office.

West Virginia's endangered species biologist, Ken Knight, has just recently left the state to assume a post as a district biologist with the North Carolina Wildlife Resources Commission. Although we are sad to see him go, we wish him the best of luck in his new position.



Brush Structures For Wildlife

Providing adequate nesting and escape cover is a critical element for proper management of ground nesting birds and a variety of small mammals. Although living brush furnishes the best habitat, artificial brush structures can be constructed where natural cover is limited. Benefits to wildlife include concealment and a safeguard from predators, protection from the weather, and establishment of a medium for seed germination and plant growth. The construction of brush piles is also an effective way to attract wildlife to your property.

Brush piles can usually be built from materials found in the vicinity. Oaks, locust, and other rot-resistant trees make good durable bases. Other suit-

able materials for bases include stumps, cull logs, old fence posts, large stones, metal grills supported on cinder blocks, and tractor tires. For filler material, small trees and limbs of almost any species are suitable, but do not use species that could drop seeds and become a potential control problem. Fall and winter are the best times to construct brush piles.

Brush piles may be mound or tepee shaped. When using woody material, the base should be constructed of sturdy trunks or limbs at least 6 inches in diameter and placed at right angles 2 to 4 layers deep. Make sure that after adding filler material, brush clippings cover the base and touch the ground, but still allow some access openings for wildlife.

Brush piles should be about 3 to 5 feet high, but smaller ones can be built to attract wildlife in cities and suburbs. To make them more aesthetically pleasing, and to provide a bonus wild fruit treat for wildlife, vines such as bittersweet, Virginia creeper or wild grape can be planted to grow over your brush pile.

An attractive winter brush pile can be made from discarded Christmas trees. The basic structure consists of an A-frame built from available scrap lumber or items such as poles, logs and branches. The material is wired and nailed together to form a secure 8 ft. wide by 8 to 20 ft. high support. At various levels of the frame, cross braces should be attached. Pile trees against the structure from side to side and in layers within the frame. This layering may result in a greater diversity of use as some species prefer ground level while others require different levels above the ground.

Good locations for brush piles include open fields, fence corners, field edges, gullies, woodland borders, clearings, ponds, or other sites that adjoin feeding and nesting cover. Placing brush piles adjacent to food strips will make the plots more attractive to wildlife. Brush piles should be from 200 to 300 feet apart, but this will vary according to the site or perhaps the kinds or animals you wish to attract.

—Wildlife Resources Notes
U. S. Army Corps of Engineers
Vol. 2, No. 2 June 30, 1984

The Cardinal

by Maurice Brooks
Professor Emeritus
West Virginia University

Shortly after World War I ended, many Mountaineers began clamoring for their legislature to establish an official state bird, as neighboring states had done.

In 1921 my father, Fred E. Brooks, wrote an article entitled, "I Nominate the Tufted Titmouse." It appeared in *The West Virginia Review*, a monthly journal which for years was edited and published by the late Phil Conley.

My father chose the tufted titmouse for reasons that seemed good to him; it was found throughout the state at all seasons of the year; it came readily to outdoor feeders, so it was easily observed by children; it was a perky little bird with an intriguing crest, and no other state had chosen it. I can't say that his nomination met with overwhelming enthusiasm, but in time, a member of the state legislature introduced a bill to proclaim the tufted titmouse as West Virginia's official state bird.

The legislative session of 1922 was notable for its lack of controversies. The country was in the period dubbed "Harding normalcy;" people were tired from the fighting and stress of the war, and no one wanted to argue about anything. One delegate told me that the only time he saw the legislature deeply stirred about any matter was during a debate about the tufted titmouse. He probably exaggerated, but it is true that differences arose, and feelings ran high with sarcastic oratory much in evidence. Simply put, a lot of legislators did not like the bird's name, and they weren't about to inflict it on West Virginians.

So the tufted titmouse was not selected, and my father's suggestion fell on deaf ears. As a sort of finale to the argument, the legislature provided for a poll of school children, the same process that had been used 20 years earlier in naming the rhododendron as the state flower. The results were predictable and nearly unanimous. Everyone knew and liked the cardinal, so it was chosen.

It has not really mattered to anyone that Virginia, together with several

other states in the near South, also chose the cardinal. The bird has so many things going for it. Like the tufted titmouse, it has a perky crest and lives in every county. It remains in West Virginia all year at most elevations. It adapts well to living under conditions which man creates around his dwellings; dense growths of bushes and shrubbery give it nesting places in spring and summer, and shelter in winter. It has a fine, clear, ringing voice. Above all, its appearance is strikingly attractive.

Early explorers in North America eagerly looked for novelties; especially living things which were new and strange and would be objects of wonder to the folks back home. It may have been a member of one of Columbus's crews, or perhaps a bit later, but in any event, an Italian journal in the 1500's carried a clearly-identifiable illustration of a cardinal. The writer noted that it was highly popular as a caged species. Needless to say, it has no close counterpart in Europe.

Captain John Smith's Jamestown colonists wrote about this wondrous red bird of the New World; perhaps they too, as opportunity offered, had sent to the home folks cardinals as caged birds. In any event, cardinals soon became widely known throughout western Europe, and nearly all early writers on outdoor subjects wrote about them. No wonder so many states selected these beautiful creatures for special honor.

Most people get their closest acquaintance with birds as they watch them at winter feeding stations. At these avian cafeterias, cardinals are among the most reliable of visitors. They come to nearly every place which has dense shrubs to shelter them. They arrive at feeders early in the morning and are usually the last customers in the evenings. They are not selfish or aggressive toward other birds.

Most cardinals we see around our homes have never been a mile from their hatching place. They bring reliable and highly welcome color to the winter scene, all the more appreciated at this season of dull grays and browns. Against a background of new snow, their brightness provides a stunning contrast.

Males, of course, are more highly colored, but females are also beautiful. Since cardinals seem to remain paired throughout the year, feeding flocks are often just about equally divided between the sexes. Early in winter a male may not willingly tolerate a female too close to him at a feeding place, but there is no aggression or bodily harm to his quick darts at her. As we shall see presently, this attitude will change radically as winter draws toward spring.

For reasons that are not apparent, cardinals now occupy sites higher in elevation and farther north than they did 100 years ago. They are still absent or highly uncommon in areas of spruce forests, but as hardwoods replace the conifers, they are moving steadily higher up the mountain slopes. The pattern we see in West Virginia is being duplicated throughout eastern North America; this brilliant bird is now breeding and wintering much farther north, and in more elevated spots than it formerly did.

Cardinals were—and are—found in woodlands, but they are more common around margins—in blowdowns, burned areas and other natural forest openings. As man cleared the land and built his homes, cardinals seemed to respond readily to new conditions. They moved unhesitatingly into man's environs, and finding conditions there to their liking, they began to multiply. Today, they are among the few native species which seemingly have not been greatly affected by man's ever-growing use of pesticides. As Rachael Carson's "Silent Spring" becomes more nearly a reality, cardinals with their cheery songs may be among those which will survive.

Essentially seed-eaters, cardinals are not out at the end of precarious food chains as are birds of a more insectivorous nature. Plant seeds are an annual crop, and man's cultivated species have provided new sources of food. During times of mild weather, even in mid-winter, cardinals are likely to forage afield, paying little heed to man-made feeders. During a deep snow or sub-normal temperatures, they are more appreciative of offerings set before them by humans. They feed on the ground where cracked grain is available, and they readily go to feeding

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stations where sunflower seed and other foods are provided. My family found, at our Upshur County feeding places, that they shared with many other birds a marked preference for black walnut kernels.

Wild fruits which contain seeds are also favored, the pulp as well as the seeds. During mid-summer months the birds feed avidly on serviceberries. Around our home in Morgantown they usually completely clean up the fruits of firethorn before Christmas arrives.

As winter progresses, usually in late January or early February in our climate, cardinals begin to sing full songs. They choose open perches in some convenient tree or on a power line. There they pour out their sprightly whistled notes, welcome harbingers of the warmer season to follow. In the spring, the attitudes of the sexes toward each other become radically different. Females begin to twitter softly and flick their plumage when a male nears them; the male is likely to respond by picking up some desired

object (often one in plain sight under her bill) and offering it to her as a love-token. A fertile imagination is not required to understand the significance of these actions; nesting, eggs, and chicks will follow in natural progression.

Cardinals choose almost any convenient vegetative tangles as nesting sites. A rose hedge is ideal, and so are other thickly-branched shrubs. Nests are usually placed at heights 8-12 feet above the ground. Nesting begins fairly early and it may be extended throughout the entire summer. There are breeding records from April until October, although late fall nestings seldom succeed. During all this time, males sing frequently to assert their rights to a chosen territory.

At our French Creek home, my father and I used to spend many pleasant hours taming some of our winter birds to feed from our hands. We used dummies, either as hands and arms or as full human figures, to train the birds, being sure that the ones which alighted on such unfamiliar

perches were rewarded by walnut kernels which they all loved. Chickadees, tufted titmice and white-breasted nuthatches—occasionally some other birds—responded readily to such training, and we soon had individuals that would land fearlessly on our hands or hats when we offered them food.

But, as hard as we tried, we had little success with cardinals. They seemed to have an inborn shyness that we couldn't overcome. We never got a single one wholly tamed. But after we moved to Morgantown, I was chagrined to learn that one of my colleagues at West Virginia University had a pair of cardinals which readily came into the house for food and even fed at the foot of the bed when windows were left open.

The cardinal is beautiful; it is with us throughout the year; it sings melodiously, and it seemingly has no bad habits. What more could we ask of our State Bird?



Northern Cardinal

Cardinalis cardinalis

The Cheat Mountain Salamander: A WV Endangered Species?

By Dr. Thomas K. Pauley
University of Pittsburgh
at Bradford

High in the Allegheny Mountains of West Virginia is found a small salamander that exists nowhere else on earth. It was first observed in 1936 by a group of naturalists as they were studying the plants and animals on Barton Knob (Cheat Mountain) in Randolph County. While these naturalists did not know what salamander species they had, they did know it was one that they had never seen before. After additional examinations by other experts, it was determined that they had discovered a new species. In 1938, one member of this group, Dr. N. Bayard Green (now Professor Emeritus at Marshall University), gave it the common name Cheat Mountain salamander after the mountain range on which it was found and the scientific name, *Plethodon nettingi* after M. Graham Netting for his contributions to West Virginia herpetology. This small salamander reaches a maximum length of a little over 11 cm (four inches). The back is black and usually has brassy or white flecks, while the belly is uniformly dark gray to black.

The Cheat Mountain salamander is of great interest to biologists, naturalists, conservationists, and others because of its limited range. This is the only salamander, and possibly the only vertebrate, that is found exclusively within the borders of West Virginia. In fact, it is found only above 3,400-3,500 feet in elevation and even then in scattered, separate populations.

The habitat of the Cheat Mountain salamander was originally described by another member of this group of naturalists, Dr. Maurice Brooks (now Professor Emeritus at West Virginia University), as a red spruce forest with a carpet of mosses on the floor. More recently, this salamander has been found in deciduous forests; however, it is most likely that these areas were once red spruce forests.

A typical and well-known habitat of the Cheat Mountain salamander is Gaudineer Knob, located on the Randolph-Pocahontas County line on Shavers Mountain. There Forest Service road 27A leads to the top of the knob to an elevation of 4,400 feet. During the day, the Cheat Mountain salamander takes refuge in underground burrows and beneath stones, fallen limbs, and bark. Just after dark, on a rainy summer's evening, the salamander can be observed foraging for food on the surface of the ground, as well as on the trunks of trees. The Cheat Mountain salamander consumes insects and other invertebrate life and is thus very important in maintaining an ecological balance in the forest.

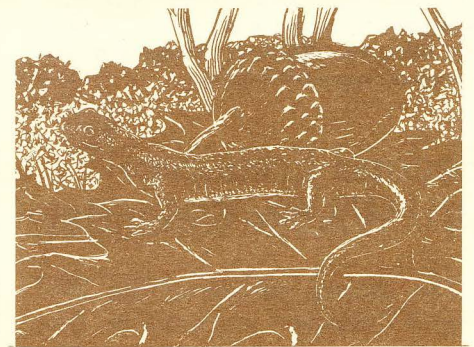
Salamanders are amphibians that resemble lizards in body shape. However, unlike lizards, they have smooth, non-scaly, slimy skin and toes without claws. The Cheat Mountain salamander is one of several species of woodland salamanders found in West Virginia. Woodland salamanders lack lungs and so "breathe" through the skin and mouth lining. For this respiratory process to function properly, the skin must be moist, thereby requiring a moist habitat for these salamanders. They are also ectothermic, that is, their body temperature is dependent upon the temperature of the habitat.

These characteristics restrict woodland salamanders to cool, moist habitats. Disturbances of this type of habitat resulting from the removal of vegetation may cause an increase in soil temperature and a decrease in soil moisture. Research has shown that the Cheat Mountain salamander has less tolerance for high soil temperatures and low soil moisture than other woodland salamanders and may, therefore, not be able to survive in disturbed areas.

Currently, there are 53 disjunct populations of the Cheat Mountain salamander known. It is important that the habitat of all populations of an animal with a limited distribution not be altered. Many populations of this salamander are interrupted by old lumbering roads, hiking trails, skiing slopes, Forest Service roads, and strip mines. Fortunately, the U. S. Fish & Wildlife Service, U. S. Forest Service, U. S. Office of Surface Mining, and the

West Virginia Department of Natural Resources have all taken steps to protect the habitat of the Cheat Mountain salamander.

However, due to the continued threatened destruction or modification of the Cheat Mountain salamander's habitat, it is currently being considered for endangered species status, according to the guidelines of the Federal Endangered Species Act of 1973. Whatever the outcome, the Cheat Mountain salamander is a unique part of the West Virginia fauna, a part that will hopefully be around for many future generations of West Virginians to enjoy.



New Nongame Apparel

Now available to complete your nongame wardrobe are winter baseball caps, featuring our chipmunk logo. The three T-shirt designs, a great blue heron standing in front of a bright orange-yellow setting sun, owls, or a chipmunk, are also still in stock, along with sweatshirts in both the chipmunk and heron designs. Shirts are available in adult sizes S, M, L and XL and children's 2-4, 6-8, 10-12 and 14-16. Colors and styles vary according to size. Caps are available in adult one-size-fits-all only. Adult T-shirts are \$6.25, caps \$5.00, children's T-shirts \$5.00, and all sweatshirts \$10.25, postpaid. Send a check or money order made out to the WV Dept. of Natural Resources, along with size and color choice (substitutions may be necessary), to the WV Dept. of Natural Resources, Nongame Unit, P. O. Box 67, Elkins, WV 26241.

WEST VIRGINIA NONGAME NEWS

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Ideas for articles are welcomed

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Second Edition of WV Wildlife Calendar

The second edition of the WV Wildlife Calendar is now available. This 14 x 22 inch calendar features wildlife paintings by WV artists with a description of each animal depicted. In addition, the calendar includes information on wild flowers, bird migration, hunting and fishing, and a wealth of additional wildlife facts concerning both game and nongame animals. The calendar runs from September 1986 through August 1987, and sells for \$5.25 each plus 50¢ shipping. Proceeds will help support the Nongame Wildlife Program.

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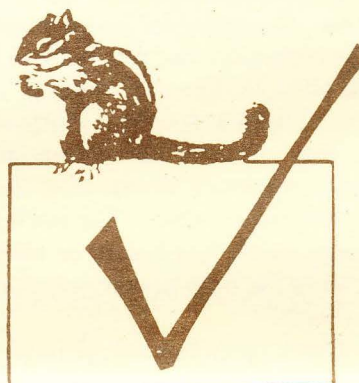
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